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APPLICATION NUMBER: 60/517,084

FILING DATE: November 05, 2003

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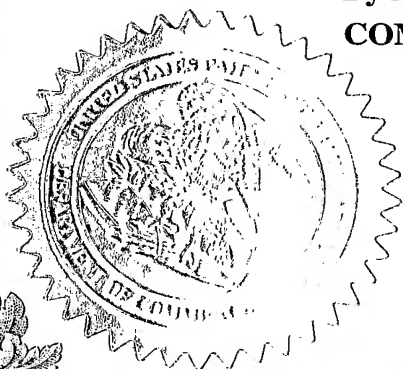
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PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

11/06/2003 CCHAU1 00000148 60517084

01 FC-2005

80.00 OP

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002 — 489-267/69033

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No.

22581 U.S. PTO
60/517084



INVENTOR(S)					
Given Name (first and middle (if any))	Family Name or Surname		Residence (City and either State or Foreign Country)		
MORDECHAI	DEUTSCH		MOSHAV OLESH, ISRAEL		
Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
A MICROSAMPLE CELL EXTRACTION TOUCHING METHOD					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number: _____					
OR					
<input checked="" type="checkbox"/> Firm or Individual Name SCHOTTENSTEIN CELLOME RESEARCH CENTER					
Address BAR ILAN UNIVERSITY					
Address _____					
City	RAMAT GAN	State		Zip	52900
Country	ISRAEL	Telephone	5342675	Fax	+97235342019
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages 5		<input type="checkbox"/> CD(s), Number _____			
<input checked="" type="checkbox"/> Drawing(s) Number of Sheets 2		<input type="checkbox"/> Other (specify) _____			
<input type="checkbox"/> Application Date Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.				FILING FEE Amount (\$)	
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fees.				80	
<input type="checkbox"/> The Director is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: _____					
<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input type="checkbox"/> No.					
<input checked="" type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: US ARMY MEDICAL RESEARCH ACQUISITION ACTIVITY AWARD# DAMD 17-01-1-0131					

[Page 1 of 2]

Respectfully submitted,

Date 11-05-2003

SIGNATURE

REGISTRATION NO. _____

TYPED or PRINTED NAME MORDECHAI DEUTSCH

(if appropriate)

Docket Number: 28

TELEPHONE +97235344675

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Provisional Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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U.S. PTO

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$)80

Complete if Known

Application Number _____
Filing Date 11-05-2003
First Named Inventor MORDECHAI DEUTSH
Examiner Name _____
Art Unit _____
Attorney Docket No. 28

METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit
Account
Number
Deposit
Account
Name

The Director is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Credit any overpayments

☐ Charge any additional fee(s) or any underpayment of fee(s)

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	<u>80</u>

SUBTOTAL (1) (\$)80

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims _____
Independent Claims _____
Multiple Dependent _____

Extra Claims Fee from below Fee Paid

-20** = _____ X _____ = _____
-3** = _____ X _____ = _____

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1202 18	2202 9	Claims in excess of 20	
1201 86	2201 43	Independent claims in excess of 3	
1203 290	2203 145	Multiple dependent claim, if not paid	
1204 86	2204 43	** Reissue independent claims over original patent	
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent	

SUBTOTAL (2) (\$)0

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	2053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing a brief in support of an appeal	
1403 290	2403 145	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1450 130	1450 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)0

SUBMITTED BY

Name (Print/Type)

Dr. Robert Vasil
R Vasil

Signature

Registration No.
(Attorney/Agent)

(Complete if applicable)

Telephone 7972-3536675

Date 11/5/03

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SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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PROVISIONAL PATENT APPLICATION

Inventor: MORDECHAI DEUTSCH

Title: A MICROSAMPLE CELL EXTRACTION FLUSHING METHOD

FIELD AND BACKGROUND OF THE INVENTION

The present invention relates to cellomics and, more particularly, to a method employing a collection system for live cells from a tissue with a minimal amount of damaging the tissue.

Tissue specimens for pathological analysis are obtained for histological and pathological observations in order to determine factors such as the characteristic features of the tissue. For the purpose of diagnosis it may be highly advantageous to carry out functional assays on living cells that should be obtained before fixation. This can only be performed on condition that the cellular extraction will cause minimal damage to the tissue structure under study.

The most ubiquitous method used by pathologists today employs fixation of thin cuts of tissues with the use of formalin for example. However as stated above, this fixation procedure kills the cells being studied and thus render them useless for functional analysis.

All tissues are open to circulating fluxes of various cells of the immune system. The level and components of this circulation is specifically sensitive to various pathological situations. Functional studies therefore may be

instrumental for diagnostic purposes and therefor there is a growing need to extract such cells with a minimal damage to the tissue before regular pathological procedures are executed.

What is therefore needed is a practical method for gently releasing individual cells from a tissue of cells such as a node.

BRIEF DESCRIPTION OF THE DRAWING

The invention is herein described, by way of example only, with reference to the accompanying drawing. With specific reference now to the drawing in detail, it is stressed that the particulars shown are by way of example and for purposes of illustrative discussion of the preferred embodiments of the present invention only, and are presented in the cause of providing what is believed to be the most useful and readily understood description of the principles and conceptual aspects of the invention. In this regard, no attempt is made to show structural details of the invention in more detail than is necessary for a fundamental understanding of the invention, the description taken with the drawings making apparent to those skilled in the art how the several forms of the invention may be embodied in practice.

Figure 1 shows a cap positioned above a tissue in a Petri dish; and

Figure 2 shows two tips protruding from holes in cap.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and the arrangement of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments or of being practiced or carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein is for the purpose of description and should not be regarded as limiting.

As is described more in detail hereinbelow, cells are gently flushed from tissues and collected in a suspension. Figure 1 is a photo of a 'cap' 20 that may be placed on the surface of a tissue or a node of cells 22 to be studied. The tissue 22 to be studied may preferably first be placed onto a preferably sterile surface 24 such as a Petri dish. The cap 20 is for providing an area on and above the tissue 22 that will be isolated from the rest of the environment into which the flushing can occur. The cap may be formed from any biocompatible material and may be rigid or resilient. An example of a resilient cap is a rubber or silicon plunger gasket of a 2 ml syringe such as or similar to one made by Luer.

The cap can then be pressed against the tissue or node so as to form a vacuum surrounding the tissue. The cap can have at least one hole 26 or perforation or preferably two, one for suction and another for pumping. The holes may be anywhere on the cap 20 preferably on opposite sides on the top surface 28 of the cap as shown in Figure 2. The holes are configured to be large enough to accommodate a suction device or a pumping device 30. Even though, it may be preferable to have one hole for suction and another for pumping, both suction and pumping may be performed through the same hole.

According to preferred embodiments of this invention, a selected part of a tiny piece of tissue/node is exposed to a localized and extensive flush of physiological solutions in order to gently release intact cells, which can then be collected. As can be seen in Fig. 1, hollow tubes such as plastic tips are inserted into the holes of cap 20.

One of the tips may be connected to a solution supply, via for example a pipettor 30, which allows for repeatable flushing utilizing the same volume of solution. The latter step is performed after pressing the rubber cap 20 towards the piece of tissue 22. Both the flexibility of the rubber cap and the tissue softness, as well as the pressure that the solution is delivered, ensure localized flushing and cell release.

The released cell suspension is collected at the last suction following the last pumping and the cells that have been flushed off the tissue and are now suspended in the flushing solution and may now be removed for further treatment, observation, study, manipulation etc.

A preferred environment for the treatment, observation, study or the manipulation of the flushed cells etc is a cell chip as described by Deutsch in PCT patent application number WO 03/035824 filed 25 October 2001 which enables the observation and manipulation of single cells or a defined amount of cells in their own individual locations.

Although the invention has been described in conjunction with specific embodiments thereof, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, it is intended to embrace all such alternatives, modifications and variations that fall within the spirit and broad scope of the present specification.

WHAT IS CLAIMED:

1. A method for flushing cells from tissues essentially as described hereinabove or depicted in the figures.

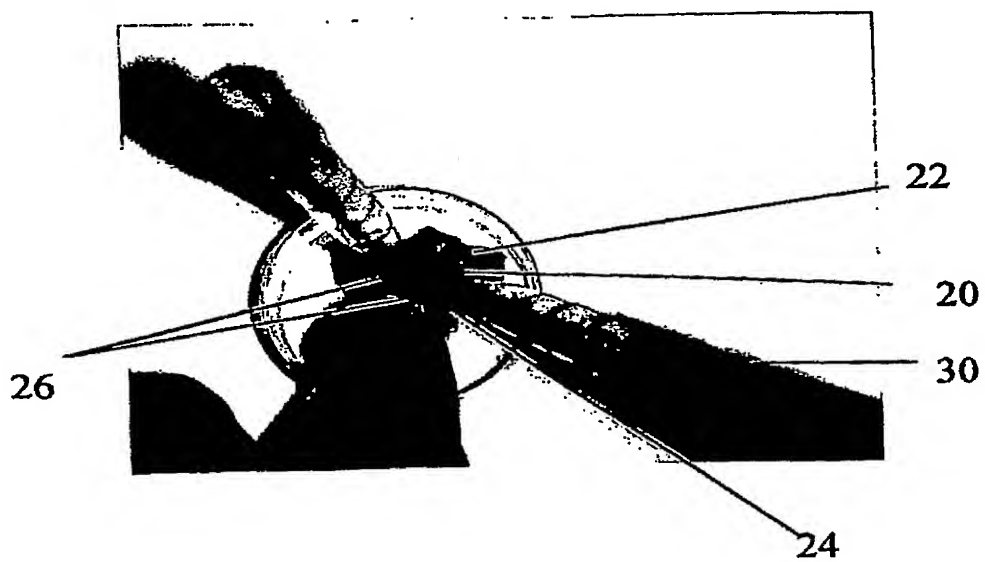


Figure 1

1/2

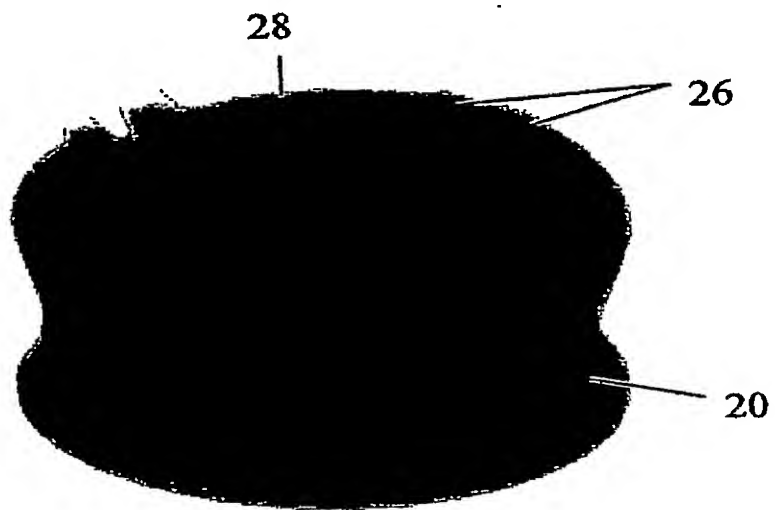


Figure 2

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